

**Lacks Creek Management Area  
Preliminary Management Plan  
Preliminary Environmental Assessment**

**Bureau of Land Management  
Arcata Field Office  
August, 2008**





**United States Department of the Interior**  
**BUREAU OF LAND MANAGEMENT**

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Dear Reader:

Enclosed for your review and comment is the Lacks Creek Management Area Preliminary Management Plan and Environmental Assessment (EA). This preliminary plan was developed to provide site-specific objectives and actions to implement the management direction for Lacks Creek contained in the Arcata Resource Management Plan and the Northwest Forest Plan. This preliminary plan also reflects public input received during a 45-day scoping period in the spring of 2007.

The plan is comprehensive in nature, identifies desired future conditions for the management area and defines and evaluates a proposed action and alternative management approaches to maintain or achieve objectives. The plan is organized by resource management topics or programs, including but not limited to: fire management; threatened and endangered species; recreation and visitor services; watershed management; cultural resources; and vegetation management.

Your review and written comments are requested. Comments concerning the preliminary plan and EA will be considered in finalizing the plan and EA. Please be as specific as possible in documenting your comments and concerns so that we can incorporate them into the analysis and consideration of changes to the plan. All comments must be received by September 9<sup>th</sup>.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Please send your comments to:  
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Sincerely,

Lynda J. Roush  
Arcata Field Manager

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## ES.1 Executive Summary and Readers Guide

Introduction: The Bureau of Land Management (BLM) has prepared this preliminary management plan and environmental assessment (EA) to identify a proposed action and alternative management approaches for the Lacks Creek Management Area, and to analyze the environmental effects resulting from implementing each alternative. Lacks Creek is located in California's northern Coast Range, approximately 15 miles inland from the Pacific Ocean. The area is in Humboldt County, approximately 20 miles northeast of Eureka. The area includes 8,673 Acres of BLM managed lands – 7,377 acres are within the Lacks Creek watershed, with the other acreage made up of contiguous lands. The Lacks Creek Management Plan is being analyzed under the direction of the National Environmental Policy Act (NEPA) of 1969. NEPA requires federal agencies to consider and disclose environmental consequences of actions, and to consider alternatives, so as to protect and enhance the environment through well-informed decisions.

The purpose and need for the Lacks Creek Management Plan was identified in the BLM's land use plan for the region, the Arcata Resource Management Plan (USDI-BLM, 2005). Lacks Creek is within the Redwood National and State Parks Protection Zone and is the second largest subbasin within the Redwood Creek watershed. The Arcata RMP calls for completion of an activity level plan for the Lacks Creek Management Area to ensure that actions are implemented in a coordinated/comprehensive fashion and protect downstream park resources. The management area contains significant and sensitive values including anadromous fisheries spawning habitat, and late successional forest habitat. Because of these significant and sensitive values, the Arcata RMP identified two Areas of Critical Environmental Concern (ACECs) that encompass all public lands within the watershed. The area is also within close proximity to Humboldt Bay population centers and offers opportunities for a variety of dispersed recreation activities. Development of a comprehensive activity plan to protect these values and provide for public uses is the purpose of the present planning and environmental analysis effort.

**Plan overview:** The preliminary plan is divided into five primary chapters which contain the following information:

**Chapter 1** provides introductory information that sets the stage for the plan including background on the Lacks Creek Management Area and the planning area (which are one in the same), existing policies and plans that are guiding the effort, and issues and concerns identified during the scoping process. The primary issues identified by the public included: 1) Interest in providing dispersed recreation opportunities and minimal developments (primarily trails and trailheads); 2) Concern that public access be managed to minimize impacts and trespass onto neighboring private lands; 3) Agreement on the importance of restoring watershed function and native ecosystems; 4) Concern regarding fire danger from increased public use; and 5) Concern about impacts to local roads from increased traffic.

**Chapter 2** describes the environment that will be affected by implementing the proposed action and alternatives. This chapter serves as a "baseline", or a description of conditions from which to compare the impacts of the proposed action and alternatives. Although the Lacks Creek watershed has many outstanding natural attributes, the area has been impacted by past land uses, primarily timber harvesting. The affected environment chapter describes legacy of these land

uses including altered forest stand age structure and species composition, and abandoned logging roads that serve as potential sediment sources. The chapter also describes other attributes of the area such as wildlife habitat conditions/species, geology, fire history, and recreation use.

**Chapter 3** contains three alternative approaches that could be implemented to manage Lacks Creek. Each alternative serves as a stand-alone plan, and addresses a comprehensive array of resource management programs including fisheries, wildlife, fire, recreation, cultural resources, transportation, visual resource, vegetation (including forest management), and riparian/water quality management.

**Alternative 1** is the Proposed Action, and represents the BLM planning team's recommended approach to managing the area to meet the planning direction of the Arcata RMP and other overarching policies, as well as addressing public concerns and interests raised during the scoping process. Some key objectives and actions for Alternative 1 include:

- Thinning and other treatments to accelerate development of late successional forest characteristics in previously harvested stands.
- Sale of firewood and a limited number of other forest products as a byproduct of restoration actions.
- Monitoring occurrence and improving habitat for priority species such as the northern spotted owl, marbled murrelet, and Pacific fisher.
- Removing certain roads and upgrading/stormproofing others to reduce potential sediment sources.
- Restoring and maintaining oak woodlands and prairies.
- Developing a loop trail system for hikers, equestrians and mountain bikers by converting roads to trails during the restoration process and developing some new trail segments.
- Limiting camping to designated sites to reduce potential for human-caused wildfires.
- Continuing an inventory of cultural resource values.
- Identifying the area for full suppression of all wildfire ignitions.

**Alternative 2** contains similar types of objectives and actions to Alternative 1, but in general, provides for a more intensive approach to management. For example:

- Prairies would be restored to larger acreages by removing additional encroaching conifers, including some larger trees.
- Watershed restoration actions would be accelerated (completed over a shorter timeframe).
- Additional forest stand treatments would be proposed.
- Additional trail segments and campsites would be provided.
- A more intensive cultural resource inventory would be completed.

**Alternative 3** is the "No Action" Alternative, and is required by the National Environmental Policy Act (NEPA) so that agencies analyze impacts if the project/plan were not implemented. Under this alternative, a limited number of actions would still be implemented under the direction of the Arcata RMP including:

- A greatly reduced number of forest stand treatments.

- Continued watershed restoration/road removal (individual environmental assessments would be completed for each project).
- Provision of basic visitor information, but no trail or campsite development.

During the comment period on the proposed plan, the public can recommend that the BLM implement all or portions of any of the three alternatives, or propose other objectives or actions for consideration.

**Chapter 4** is an analysis of the effects, both beneficial and adverse, of implementation of the management goals, objectives, and actions for each of the identified alternatives. This analysis showed that none of the management alternatives have impacts that approach significant levels.

**Chapter 5** describes the processes of gathering public input and consultation with other agencies and jurisdictions during the development of this preliminary plan. It also contains a list of preparers of this document.

The document also contains a list of references and an appendix that includes a list of standard operating procedures/best management practices that would be prescribed under all alternatives.

# **Chapter 1-- Introduction and Background**

## **1.1 Introduction**

The Bureau of Land Management (BLM) has prepared this preliminary management plan and environmental assessment to identify a proposed action and range of alternative management approaches for the Lacks Creek Management Area, and to analyze the environmental affects resulting from implementing each alternative. This chapter provides background on the planning process, purpose of the effort, management policies and public concerns that are incorporated into the plan, and other background information. The Lacks Creek Management Area is located in Humboldt County, California, approximately 20 miles northeast of Eureka (see Map 1-1, Lacks Creek Vicinity). The area is described in more detail below (Planning and Management Area Description). Detailed information on resources within the management area can be found in Chapter 2 (Affected Environment).

## **1.2 Background on the BLM's Planning Process and Purpose and Need for the Lacks Creek Activity Plan**

### **1.2.1 Background on Planning Process**

The BLM uses a three tier planning and environmental analysis process to guide implementation of management actions on public lands. The first and broadest level is the resource management planning process, which allocates land uses, identifies special administrative designations and permissible public uses and constraints. The Arcata Resource Management Plan (RMP) was completed in 1992 and amended in 1996, and provides general management direction for approximately 200,000 acres of BLM public lands in Northwest California, including the Lacks Creek Management Area.

Activity Plans are the second tier of the BLM's planning/environmental analysis. They are generally completed for special management areas, or for specific management programs (e. g. recreation, fire) and define site specific objectives, actions and other more detailed direction to provide for coordinated implementation of RMP goals. Site specific "project planning" is the third tier of BLM planning/environmental analysis, and is completed for individual projects such as construction of a recreation site. RMP level planning is required for all BLM managed lands, but completion of activity or project planning is discretionary and depends on the nature of the area or program.

### **1.2.2 Purpose and Need for Lacks Creek Activity Plan**

The Arcata RMP identified one watershed-based Area of Critical Environmental Concern (ACEC), and one old-growth ACEC/Research Natural Area (RNA). These are areas with significant and sensitive values that require special management and protection. The watershed ACEC was established based on the inclusion of Lacks Creek within the Redwood National and State Parks Protection Zone (PPZ) and the need for comprehensive watershed restoration and protection. The RMP also identified the need to complete an activity level plan for the Lacks Creek ACEC to ensure that restoration actions are implemented in a coordinated/comprehensive fashion. This comprehensive activity plan is the purpose of the present planning and

environmental analysis effort. Specific environmental analysis for many projects or actions will be bundled and assessed within this plan. This will ensure a coordinated analysis and allow for direct implementation of many projects upon plan completion. However, other projects, especially those scheduled later in the implementation process, may require additional “project planning” and environmental analysis which would be tiered to the objectives within this plan.

The Lacks Creek planning effort is comprehensive in nature, and will evaluate existing management planning guidance and resolve or address issues within the area identified through agency, interagency, and public scoping efforts. This plan also identifies specific actions for implementing the area’s long-range management goals and objectives. The plan analyzes the current management situation and resource conditions and identifies desired future conditions to be maintained or achieved, management actions necessary to achieve specific objectives, and a process for implementing and adapting the actions necessary to achieve stated objectives. It addresses and integrates all existing management programs, including but not limited to: fire management; fisheries; vegetation and wildlife including threatened and endangered species; cultural resources; scenic resources; recreation and visitor services; watershed management; and transportation.

In 2006, the BLM received funding from the California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division to inventory and assess which roads on the east side of Lacks Creek would continue to be accessible for motorized recreation uses and which spur roads would be re-opened and made vehicle accessible. Funding also provided for determining roads throughout the entire area that would be restored and rehabilitated, and those that would be converted to non-motorized recreation uses. This planning process and associated inventory effort also serve to meet the purpose of this state grant.

### **1.3 Planning and Management Area Description**

Lacks Creek is a tributary to Redwood Creek and is located in the northern Coast Range of California approximately 20 miles northeast of Eureka and 10 miles southeast of Orick. The area is in Humboldt County (See Map 1-1 Lacks Creek Vicinity Map). The area included in this plan (planning area) encompasses all lands managed by the BLM within and adjoining the Lacks Creek watershed. Additional lands and interests purchased by the BLM would also be managed under the guidance of this plan upon acquisition, but the plan does not apply to privately owned lands. (See Map 1-2 Planning and Management Area Boundary). The planning area and Lacks Creek Management Area are one in the same for the purposes of this plan. Therefore, “management area” will be used to refer to the area covered by the plan in the remainder of this document. The management area includes 8,673 acres of BLM public lands:

The planning effort and environmental analysis will recognize that nearby lands, communities, resource values, and uses are all affected by management of Lacks Creek, and their use/values in turn affect management of the area. The plan includes recommendations for the BLM to work with entities that manage areas or programs that are not under the BLM’s jurisdiction but directly affect Lacks Creek management. However, final decisions regarding these recommendations will rest with the appropriate agency or community government, and formal decisions in this plan only apply to BLM managed public lands.

## **1.4 Conformance with Arcata RMP and Existing Planning Direction**

The Lacks Creek Management Plan fully conforms to the Arcata RMP (USDI BLM 1995). Specifically, Section III “Management Actions” on page 2-25 calls for Preparation of a watershed activity plan that includes:

- Silvicultural activities for previously entered stands for developing suitable habitat for late successional forest species where those conditions do not now exist.
- Management Actions, which could include silvicultural activities, for protecting or enhancing old-growth values within the RNA/ACEC, and the Late Successional Reserve (LSR) which encompasses the entire management area as a land use allocation under the Northwest Forest Plan (USDI-USDA, 1994).
- Management of the RNA/ACEC to enhance recreational, educational, research and aesthetic values.
- Cooperative management with Redwood National and State Parks to rehabilitate the Redwood Creek Watershed and ensure compliance with Public Law 95-250 and establishment of the PPZ.
- Monitoring of Northern Spotted Owl habitat.
- Provide signing for vehicle use and public land boundaries.

## **1.5 Conformance with Other Applicable Policies and Plans**

The Lacks Creek Management Plan is in conformance with the Federal Land Policy and Management Act of 1976 and the National Environmental Policy Act (NEPA) of 1969.

As stated above, Lacks Creek is identified as a LSR land use allocation under the Northwest Forest Plan Record of Decision (USDI- USDA, 1994), and the plan objectives and actions must be implemented in a manner that is in conformance to the standards and guidelines of this plan.

The Redwood National and State Parks Expansion Act of 1978 (Public law 95-250) was enacted to protect the redwood resources within the park from damaging upstream activities within the watershed, and to establish a land-base to ensure protection of the resource, and to establish a park with more meaningful visitor opportunities. Within the area outside of, and immediately upstream from the park, a “Park Protection Zone” was established. Within this zone, the Secretary of Interior is authorized to acquire lands to protect downstream park resources. The Lacks Creek watershed is within this zone. The act further directs that any lands acquired shall be managed in a manner that will protect park resources (USDI BLM, 1996).

Additional resource-specific policies and guidance for development of this plan are described in the Affected Environment chapter.



*Photo 1.1: Tall Trees Grove, Redwood National and State Parks –Lacks Creek is within the congressionally designated Park Protection Zone.*

## **1.6 Planning Themes and Issues**

A planning theme or issue is defined as a matter of concern or interest regarding resource management activities, the environment, or land uses, that together serve to provide a framework for the alternatives considered and topics addressed in the plan. The themes listed below were identified during scoping at the beginning of this planning process. Additional details about the public and agency involvement process are in Chapter 5 of this document. Based on the scoping comments and public outreach process, the following themes were identified to be addressed in the planning process:

**Recreation Use:** There was broad interest in provision of additional recreation opportunities in Lacks Creek, especially trails. There was also interest in keeping any developments minimal and rustic to keep the current remote character of the area.

**Private Land/Neighboring Land:** Area residents want to ensure that access is managed to minimize impacts and trespass onto neighboring private lands.

**Ecosystem restoration:** There was broad support for maintaining a balance of restoration of prairies, old growth forest and stream habitat protection.

**Fire:** There was considerable concern regarding fire danger from increased public use and support for reintroducing prescribed fire into oak woodlands.

**Roads/Transportation:** Concerns focused on retaining an adequate BLM road network for fire suppression and resource management. Also, concerns were expressed regarding safety issues and additional wear and tear from increased public use of Bair County Road.

## **1.7 Issues Considered but not Further Analyzed**

Several topics identified during the scoping process or by the team that are not addressed in the plan are identified below. These issues are either beyond the scope of the planning effort, can be addressed through existing policy or other non-planning means, or are outside of the BLM's jurisdiction.

**Vehicle access to the west side of Lacks Creek/additional vehicle routes** – The vehicle access route into the acquired lands on the west side of Lacks Creek crosses private lands. No public use easement was granted by the seller and use is only available for administrative purposes. Also, as a condition of the donation agreement, the newly acquired lands were to be designated closed to all public vehicle use. The BLM establishes Off Highway Vehicle (OHV) designations for public lands through the Resource Management Planning process. The OHV designations within the management area were established in the Arcata RMP (USDI BLM 1995) (See Affected Environment chapter) and changes to these designations are beyond the scope of this plan.

**Land acquisition** – Parameters for land acquisition are also RMP level decisions. The Arcata RMP established goals for the BLM to acquire all lands within the Lacks Creek watershed if they are available from willing sellers. Any newly acquired lands would be managed under the goals of the RMP and this activity plan.

## **1.8 Planning Process**

The Lacks Creek Management Plan is being analyzed under the direction of the National Environmental Policy Act (NEPA) of 1969. NEPA requires federal agencies to consider and disclose environmental consequences of actions, and to consider alternatives, so as to protect and enhance the environment through well-informed decisions. Specific direction for the EA process are provided in BLM NEPA Handbook, H-1790-1.

The Lacks Creek Management Plan and EA involves the following steps:

**Scoping** – The Scoping process is intended to identify issues and concerns from the public, other agencies and organizations to frame the “scope” of the plan and environmental analysis. A formal scoping period for the Lacks Creek Management Plan was held from April 20 – June 9, 2007. The results of this process are contained in the scoping summary which is in Chapter 5.

**Preliminary Plan and EA Development:** This document is the product of an interdisciplinary team effort to develop and analyze a proposed action and an array of potential alternatives for management of BLM public lands within the Lacks Creek watershed that address the issues identified in scoping, the direction in the Arcata RMP, and other laws and policies. The EA also includes an analysis and comparison of impacts associated with implementing each of the various management alternatives.

**Public Comment on the Preliminary Plan and EA (Ongoing 30-day comment period)** – The comment period gives the public an opportunity to review the preliminary plan and EA and provide input on the proposed action, alternatives, and associated environmental analysis. The comment process is described in more detail in the letter from the Arcata Field Manager at the beginning of this document.

**Development of Final Plan/EA/Decision Record** – The interdisciplinary planning team will review public, agency and organization comments on the Preliminary Plan and EA and incorporate changes into the Final EA/Plan. The Field Manager will sign a Decision Record, then allow for a 30-Day Appeal Period prior to implementing any plan actions. (late summer 2008)

## **1.9 Planning Time Horizon and Implementation**

This plan is intended to provide management guidance for the area for approximately the next 15-20 years. Natural resource management is, by nature, a learning process, and managers must be able to adapt to changing circumstances such as new research findings, new laws, changing environmental factors, and increasing public demand. For this reason, some of the proposed management actions in this plan have adaptive management components built into them. The adaptive management process is discussed in more detail in Chapter 3.

Many of the actions under this plan will be directly implemented upon completion of the environmental analysis process. However, additional documentation may be required to comply with NEPA, such as additional environmental assessments (EAs), for site-specific actions occurring later in the plan implementation period. All such documents would be prepared with the appropriate level of public input as called for under NEPA. Plan decision implementation is monitored to ensure successful results and to incorporate adaptive management components. Revisions to the plan would be completed as needed to accommodate changes in resource or user needs, policies, or regulations, or to analyze an adaptive management action that is beyond the scope of the existing analysis.

## **1.10 Organization of This Document**

This preliminary plan is composed of the following sections:

- Chapter 1: Introduction
- Chapter 2: “Affected Environment,” is a description and analysis of the current environmental conditions and management practices in the Lacks Creek Management Area.

- Chapter 3: “Alternatives,” lists three management alternatives for each major resource or program area. The BLM’s proposed action is identified as Alternative 1.
- Chapter 4: “Environmental Consequences,” is an analysis of the effects, both beneficial and adverse, of implementation of the management goals, objectives, and actions for each of the identified alternatives.
- Chapter 5: “Coordination and Consultation,” describes the processes of gathering public input and consultation with other agencies and jurisdictions during the development of this preliminary plan. It also includes a list of preparers of this document.
- Appendices include additional information that support analyses and conclusions of the planning process.
- Maps are contained in the back of the document and identify locations of proposed projects and the extent of various resource values referenced within the plan.

## **Chapter 2, Affected Environment**

### **2.1 Introduction and General Setting**

This chapter describes the physical, biological, cultural, and social-economic conditions that may be affected by implementing the Lacks Creek Management Plan proposed action or alternatives. These existing conditions and trends provide a baseline for analyzing expected impacts from management actions and provide the background for the no action/present management alternative. This chapter describes the status, or present characteristics and condition, of the public land; the status of physical and biological processes that affect ecosystem function; the condition of individual components such as soil, water, vegetation, and wildlife habitat; and the relative value and scarcity of the resources.

Lacks Creek is located in California's northern Coast Range, approximately 15 miles inland from the Pacific Ocean. The area is in Humboldt County, approximately 20 miles northeast of Eureka. The management area includes 8,673 acres of BLM managed public lands – 7,377 acres are within the Lacks Creek watershed, with the other acreage made up of contiguous lands. The management area is surrounded by large private land timber holdings, and the region contains some of the most productive and intensively managed commercial forest lands in the United States. The immediate area is sparsely populated with scattered ranches in adjacent Redwood Valley.

### **2.2 Chapter Organization**

This chapter is broken down into the following topic areas for analysis.

- 2.3 Climate and Climate Change
- 2.4 Geology-Soils
- 2.5 Cultural Resources
- 2.6 Lands and Realty
- 2.7 Social and Economic
- 2.8 Fisheries, Riparian and Water Quality
- 2.9 Wildlife
- 2.10 Vegetation (including Forest Management)
- 2.11 Grazing
- 2.12 Fire
- 2.13 Recreation and Transportation
- 2.14 Visual Resources
- 2.15 Wild and Scenic Rivers
- 2.16 Law Enforcement and Public Health/Safety
- 2.17 Solid Waste/Hazardous Materials
- 2.18 Social and Economic
- 2.19 Air quality

### **2.3 Climate and Climate Change**

### 2.3.1 Management Area Climate

The climate in Northwest California can be broadly described as Mediterranean; winters are wet and cool, and summers have virtually no precipitation. Nearly all rainfall occurs between October and May. Summer temperatures are warm in inland locations, and can exceed 100°F on the hottest days. Average air temperatures range from a high of 95°F to a low of 30°F (California Department of Water Resources 2008). The coastline is moderated by the cold Pacific Ocean waters; with summer high temperatures in the mid-60s with many days of fog. The redwood forest belt is located within this zone of coastal fog influence. The Lacks Creek Management Area is far enough upstream in the Redwood Creek drainage to have more of an inland climate, although the management area has some marine air influence. Elevations in the area range from 600 to 4000 feet. Figure 2-1 shows average climate data for Willow Creek which is approximately 10 miles inland from the management area. Willow Creek receives less marine influence, so summertime temperatures are generally 5-10 degrees warmer than in the management area. Also, the orographic influence of the mountains within the management area results in higher rainfall than Willow Creek, with an estimated 65-80 inches annually (NOAA 2008). The total amount of precipitation combined with the often intense and prolonged rainfall events brings high-flow events to the watershed in winter.

Snow often falls at the higher elevations and can result in accumulations of several feet during large storms. Snowpack can remain for several weeks or months, especially on shaded aspects, blocking access to roads and trailheads. Heavy snowload periodically causes uprooting and breakage of stands of tanoak trees, blocking access to roads and trails. Snowfall at elevations below 2000 feet is generally light and melts within a short timeframe.

**Figure 2-1**

Willow Creek Temperature and Precipitation Averages (elevation 600 feet)

(Source: California State Climatologist. [http://www.climate.water.ca.gov/climate\\_data/northcoast.cfm](http://www.climate.water.ca.gov/climate_data/northcoast.cfm))

Normal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Minimum	34.5	36.8	38.4	40.4	44.5	49.3	53.5	52.4	47.9	43	39.7	35.4	43
Maximum	52.2	57.1	62.7	69.9	78	86.9	94.7	94.4	87.6	74.4	58.3	50.6	72.2
Mean	43.4	47	50.6	55.2	61.3	68.1	74.1	73.4	67.8	58.7	49	43	57.6
Precip.	9.33	8.83	7.84	3.43	2.04	0.64	0.15	0.42	1.14	3.19	8.1	9.38	54.49

### 2.3.2 Climate Change

Secretary of Interior Order No. 3226, signed on January 19, 2001 (USDI 2001) requires all Department of Interior (DOI) agencies to evaluate climate change impacts in management planning. The order states specifically that that “Each bureau and office of the Department will consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research and investigations, when developing multi-year management plans, and/or when making major decisions regarding the potential utilization of resources under the Department’s purview.”

Climate models show that it is highly probable that California winters will become warmer and wetter during the next century on a statewide average. Summers will also become warmer, but the temperature increase is not expected to be as great as the winter increase (Union of

Concerned Scientists, 2008). Most of California's precipitation falls in winter, and in the future more of it is likely to fall as rain, less as snow, a change that is likely to lead to increased winter runoff and decreased summer stream flow. The Lacks Creek watershed does not typically build a large winter snowpack, but the upper reaches of Redwood Creek do receive a portion of their annual runoff from snowmelt. Also, both Lacks Creek and the remainder of the Redwood Creek Watershed are subject to “rain on snow” events that increase winter peak flow events (Redwood Creek Watershed Group 2006).

Climate change is also expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. According to the California Climate Change Center (2006), the risk of large wildfires in California could increase by as much as 55 percent statewide, and up to 90 percent in northern California (by the end of the century) by drying out and increasing the flammability of forest vegetation. In northern California, warmer temperatures are expected to shift dominant forest species from Douglas-fir (*Pseudotsuga menziesii*) and white fir (*Abies concolor*) to Pacific madrone (*Arbutus menziesii*) and oaks (*Quercus spp.*). Projections also suggest that continued global warming could adversely affect the health and productivity of California's forests. The productivity of mixed conifer forests is expected to diminish by as much as 18 percent by the end of the century. Also, established stands may continue to survive, but regeneration of new forests would be impacted.

## **2.4 Geology and Soils**

The Lacks Creek watershed is approximately 12,400 acres and is a major tributary to Redwood Creek. The headwaters are in the Dunn Ridge area and from there the stream flows northwest for five miles, flanked by Pine Ridge on the east and Beaver Ridge on the west. Lacks Creek then turns abruptly southwest for another 2.75 miles and flows to its confluence with Redwood Creek. The reason for this abrupt change in stream course is unknown but may be related to unmapped faulting, change in rock types, or an unmapped, resistant geologic structure.

Lacks Creek is located in the northern part of the California Coast Range, a large coastal mountain system extending from southern California north to the Oregon border. These mountains are the result of geologic folding and uplift of ancient oceanic rocks along the western margin of California during the last 35 million years. The landscape in the northern part of Coast Range is structurally controlled by the San Andreas Fault system, related geologic plate movements, and geologic features such as the migrating Mendocino Triple Junction.

The topography in the Coast Range is dominated by parallel, northwest trending ridges and elongated valleys, with many major rivers and streams following the weak and easily eroded rocks within major fault zones. Redwood Creek flows through one of these northwest trending valleys where the topography and major stream flow are controlled by a large fault named the Grogan Fault. Rocks within the entire Redwood Creek drainage, including Lacks Creek, have been deformed and weakened by faulting and related shearing which also contributes to the high erosion rates within the watershed (Noland et. al. 1995)

Two distinct sedimentary rock units underlie the Lacks Creek watershed and they are responsible for the striking visual contrast between the east and west slopes. The sharp soil and vegetation

boundaries are due to differences in rock composition and thickness, factors that greatly influence the topography, soil formation, and vegetation within the watershed.

Both rock units contain similar lithologies, or rock types, and are mostly sandstone and shales. The thickness of the rock layers, especially within the sandstones, and the relative abundance of shale layers appear to be overriding factors in soil development, slope stability, erosion potential, and vegetation types.

The two formal rock units are known as the “Coherent Unit of Lacks Creek” and the Incoherent “Unit of Coyote Creek”. The name, “Coyote Creek”, refers to the type of geographic locality for the Incoherent Unit rocks, which extend from Coyote Creek southeast into the Lacks Creek watershed. Both rock units belong to the Franciscan Formation, a group of ancient marine sediments found throughout the Coast Ranges of northern California. The rock structures commonly found in the Franciscan Formation are turbidites, alternating layers of marine sandstone and shale that formed as a result of undersea landslides, or “gravity flows”. These rocks were originally deposited as sand and mud on the continental shelf and transported down the continental slope, with each interbed of sand and mud representing one of these “gravity flow” events. This turbidite forming process continues today in the deeper ocean off the California coast.

#### *East Side*

The east side of Lacks Creek has some of the steepest slopes in the entire Redwood Creek watershed. The Coherent Unit is confined to the eastern slopes of Lacks Creek and contains very thick sandstone layers that form steep slopes, sharp ridge crests, and narrow V-shaped tributary canyons. These resistant topographic features are due mainly to the thickness and cementation of the underlying sandstones. The sandstones are also more resistant to shearing and fracturing from geologic forces than the thin layers of sandstone and shale on the west side of the watershed. Thin, weaker, shale layers are occasionally present within the thick interbedded sandstones in the Coherent Unit, but they are less common than on the west side of Lacks Creek. Ironically, debris slides, debris avalanches, and small bedrock landslides are still common on the eastern slopes due to the steepness of the terrain.



*Photo 2-1: The east side of the Lacks Creek drainage is made up of harder sandstone. This results in very steep slopes, numerous rock outcrops, and several waterfalls in the side drainages.*

#### *West Side*

The west side of the Lacks Creek has gentler slopes with rolling topography, scattered prairies, and less well developed drainages. These topographic features are typical of the Incoherent Unit of Coyote Creek geology throughout the larger Redwood Creek watershed.

Some of the geomorphology that trends along the line of prairies on the west side suggests ancient earthflow topography and the modern prairies may actually be smaller remnants of larger prairies that occupied older earthflows in the geologic past. Large prairies are commonly found on earthflow terrain within the Redwood Creek basin.

The bedrock in the Incoherent Unit has a higher percentage of thin shale and sandstone layers than the east side and thick sandstone beds are less common. Minor outcrops of more resistant sandstone, volcanic “greenstone”, and chert occur as floating blocks or topographic knobs within the terrane of the softer, sheared, shale matrix.

The weaker, thin beds of rock have been extensively broken and crushed by faulting and the result is a sheared shale matrix that is easily eroded to form gentler topography. This crushed rock is also more readily broken down by weathering and forms deeper soils with a higher clay content than the soils on the east side. The deeper soils have good water holding capacity, especially in the prairie areas and vegetation reflects this condition with wetter forest types found

on the west side when compared to the forest composition on the eastern slopes. Both native and planted redwoods, an indication of moist soil conditions, are also found in these soils on the lower reaches of Lacks Creek.

These weaker rocks are also highly susceptible to landslide mass wasting, gully erosion, and stream bank failure during flood events. Logging roads and stream crossings are especially vulnerable to erosion and failure in this geologic rock type.



*Photo 2-2: The west side of Lacks Creek (sloping downward to the right in this photo) is less steep and has deeper soils than the east side.*

### *Landslides*

Lacks Creek lies within an area of Redwood Creek watershed that is considered to be less stable than most of the larger watershed. Landslides are common within the Lacks Creek drainage and small debris slides are prevalent along the inner gorge. The North Coast Watershed Assessment Program (NCWAP, 2006) reported that Lacks Creek and the adjoining watershed, Minor Creek, have the highest landslide potential of the entire Redwood basin, with 91-94 percent of their areas within the high to very high mass wasting potential categories.

This report also designated dormant landslide areas as the predominant “instability feature” throughout the Redwood Creek basin. The numerous abandoned logging roads and failing stream crossings increase the risk of future debris torrents and landslides at these sites during large storm events.

The NCWAP report concluded that streamside landslide activity within Lacks Creek increased by a total of 222 landslides from 1984 to the year 2000 within a 44 square mile analysis area of

the report. Lower Lacks Creek showed the highest increase and may have contributed to the elevated sediment stored in the lower reaches of Lacks Creek which was observed in an analysis of air photos taken in 2000.

*SOILS*

Soils in the project area were mapped in detail by the US Department of Agriculture, Natural Resource Conservation Service in 2004 and a published report released in 2006. The underlying bedrock geology, which served as a base for the soil mapping was mapped by the US Geological Survey and published in 1981.

The bedrock geology not only controls the geomorphology of the watershed, but it also has an overriding influence in the development of the soils and the productivity of the forest vegetation. Soil properties such as texture, depth, and the amount of rock fragments greatly influence moisture supply, and plant nutrients. Differences in these properties and other soil parameters have a large influence on the composition and distribution of the varied plant communities within the watershed. (USDA - NRCS 2006).

The resistant sandstones on the steep eastern slopes break down into well drained, rocky soils and vegetation on these slopes reflect forest types that require less moisture during drier months. The crushed, thin bedded shales and sandstones on the western slopes form predominantly deep, clay rich soils which hold moisture well and favor plants that depend on wetter conditions, such as redwoods and western red cedar (personal communication, J. Seney, NRCS, 10/19/2007). These productive soils are also found along the main ridge crest on the far eastern side of Lacks Creek watershed. This second main soil/vegetation boundary follows another geologic contact between the thick resistant sandstones on the west and weaker, thin bedded shales and sandstones to the east.

The amount and size of rock fragments along with the percentage of sand greatly influence erosion hazards in the soils. In Lacks Creek almost all complexes are susceptible to severe surface erosion, especially on the western slopes with grades of higher than 20 percent. These complexes are at high risk with regard to construction and use of foot trails or off road motorcycle trails on slopes of greater than 20 percent (USDA- NRCS, 2006). The Mooncreek-Toosup-Noisy, NRCS soil complex code 462, rated an erosion rating of slight and this complex is found on the ridges and upper slopes on the western watershed boundary of Lacks Creek. Refer to Figure 2-2 for soil types found within the Lacks Creek watershed.

Figure 2-2 Major soils types of the Lacks Creek watershed

<i>Soil Name</i>	<i>Texture</i>	<i>Depth</i>	<i>Landform</i>	<i>Lithology</i>	<i>Typical Vegetation</i>
Ahpah	fine-loamy	moderately deep	strongly convex ridge tops & mountain slopes	mudstone/sandstone	redwood/Douglas-fir
Atwell	fine	very deep	earthflows	sheared mudstone	redwood/Douglas-fir
Coppercreek	fine-loamy	very deep	mountain slopes & broad ridge tops	sandstone/mudstone	redwood/Douglas-fir

Darkwoods	loamy-skeletal	very deep	very steep mountain slopes	sandstone	tanoak/Douglas-fir
Flayat	fine-loamy	very deep	mountain slopes	mudstone/sandstone	grassland
Hawthorse	fine	deep	mountain slopes	sandstone/mudstone	grassland
Highoaks	fine-loamy	very deep	mountain slopes	sandstone/mudstone	oak woodland
Lacks creek	loamy-skeletal	moderately deep	strongly convex ridge tops & mountain slopes	sandstone	redwood/Douglas-fir
Mooncreek	fine-loamy	very deep	mountain slopes & broad ridge tops	sandstone	Douglas-fir/tanoak
Noisy	loamy-skeletal	moderately deep	strongly convex ridge tops & mountain slopes	sandstone/mudstone	Douglas-fir/tanoak
Oakside	loamy-skeletal	shallow	Very steep mountain slopes, very strongly convex ridge tops	sandstone	canyon live oak/tanoak
Rockus	loamy-skeletal	deep	mountain slopes	sandstone	grassland/oak woodland
Sidehill	loamy-skeletal	moderately deep	Strongly convex ridge tops & mountain slopes	sandstone	Tanoak/Douglas-fir
Slidecreek	loamy-skeletal	very deep	mountain slopes	sandstone	Douglas-fir/tanoak
Tossup	fine	very deep	Broad ridge tops & upper mountain slopes	mudstone/sandstone	Douglas-fir/tanoak

Textures (subsurface) (clay percent):

Fine = greater than 35 percent; Fine-Loamy = 18-35 percent ; Loamy Skeletal = 18-35 percent (greater than 35 percent rock fragments)

Soil depth (to bedrock):

Shallow = less than 20 inches; Moderately deep = 20-40 inches; Deep = 40-60 inches; Very deep = greater than 60 inches

## **2.5 Cultural Resources**

### **2.5.1 Prehistoric and Historic Sites**

To date there is very little well-known cultural information assembled for public lands within the Lacks Creek watershed. Several archaeological surveys have been completed, covering 533 acres of the total 8,673 acres of the Lacks Creek Management Area. A handful of sites were recorded, all of which are relatively ephemeral prehistoric lithic scatters. An additional four sites are known from field observations, but have not been recorded. Most recently, inventories conducted for 2008 restoration projects resulted in the discovery of several more sites, all ephemeral in nature. These sites have not been evaluated for National Register of Historic Properties eligibility, which in no way infers that there are no significant historic properties in the management area. In order to establish some baseline data on cultural activities of importance in future project planning, a cultural context document is proposed to synthesize all information on important places, practices, and events in the area.

The historic properties that have been identified to date include both Native American and historic Euro-American sites, primarily representing remains associated with stone tool manufacture and maintenance, and ranching and logging respectively. The cultural resource inventories on record with the BLM result from road maintenance and decommissioning projects. Numerous other archaeological surveys have been completed in the area, prior to BLM acquiring the lands. These inventories are those required by the California Environmental Quality Act as part of timber harvesting plans. The reports of those surveys are generally cursory, and almost invariably negative as to the presence of historic properties. Entry of those survey data into the Arcata Field Office cultural resources geodatabase is planned for the near future, and could constitute sources of information adding to the planned cultural context document.

### **2.5.2 Area Ethnographic Background**

The Lacks Creek Management Area is located within the ethnographic territory of the Chilula and Whilkut tribes. The Chilula and Whilkut were subgroups of the larger ethnic group that is now the Federally recognized Hoopa Valley Tribe. All members of this group speak an Athabascan language (Kroeber 1970:137). At the time of contact with EuroAmericans, the Chilula inhabited much of the Redwood Creek watershed. Their territory extended from approximately ten miles upstream from the mouth of Redwood Creek, to Minor Creek, including the Bald Hills area. Chilula villages were primarily located on or near lower Redwood Creek. All but one of these were on the northeastern side of the creek. The Chilula were one of several subdivisions of the Whilkut (Baumhoff 1958:201). The territory of the Whilkut included the headwaters of Redwood Creek, as well as Mad River, except in its lowest course, and some areas along Grouse Creek.

The placement of Chilula and Whilkut villages along significant waterways is a reflection of their economy, one that was based on the products of a riparian environment. These communities were quite small, averaging 30 people per village. Names and locations of approximately 36 villages and camps have been recorded in the ethnographic literature (Baumhoff 1958:202-203). The majority of these sites lie on the eastern side of Redwood Creek, where the hillsides receive more sun and the forest is thinner. The estimated population of the Chilula in 1848 was about 600 individuals. According to Kroeber, the Whilkut may have numbered about 500 individuals (Kroeber 1970:141).

In summer, the people migrated to the grassy ridges of the Bald Hills area, where seeds, bulbs and game were plentiful. In autumn, they remained in the Bald Hills or crossed Redwood Creek to harvest acorns on the shadier hillsides that slope down to the creek from the west (Goddard 1914:276-278).

The coming of the gold miners and settlers in the 1850's took a heavy toll on the Whilkut. Gold mining in the Klamath Mountains brought many new people to the area, and pack trails were established across the Bald Hills. The placement of pack and supply trails through Chilula and Whilkut territory brought on conflicts resulting in the near decimation of the Chilula tribe. (Wallace 1978:177-178). Descendents of surviving Chilula and Whilkut tribes now reside in the Hoopa Valley.

## **2.6 Lands and Realty Management**

The Lacks Creek Management Area contains 8,673 acres of public lands. Of the total acreage, 2,900 acres were always in public ownership with the remaining acreage acquired from private landowners. In 1983, approximately 1,200 acres were acquired from Simpson Timber Company. In the last two years an additional 2,403 acres were acquired from Eel River Sawmills and 1,842 acres from Barnum Timber. An additional 160 acres were also acquired from a private party. The Arcata RMP (BLM, 1995) calls for retaining all lands within the Lacks Creek watershed in public ownership, and to prioritize acquisition for all lands within the watershed from willing sellers to improve the effectiveness of watershed management and protection/enhancement of wildlife and fisheries habitat. Some of the lands (see map 2-1) were donated to the BLM in a partnership effort between Save the Redwoods League and the Resources Legacy Fund for watershed and habitat conservation and restoration purposes, and so have deed restrictions limiting certain types of management/uses including:

- No construction of roads, structures or other improvements.
- Right of access across adjacent properties is for BLM administrative purposes only.
- No livestock grazing.
- No off-highway vehicle use.

## **2.7 Social and Economic Considerations/Environmental Justice**

Humboldt County is relatively rural and isolated, and until recently, has relied on timber harvesting for economic stability. The region is also known for its dramatic landscapes and ample outdoor recreation amenities which are considered to be important tourism resources as well as quality of life attributes for local residents. In 1999, the Humboldt County Board of Supervisors adopted a Comprehensive Economic Development Strategy (CEDS) to guide local economic development. The strategy is called *Prosperity! The North Coast Strategy* (Humboldt County, 1999), and prioritizes the needs of nine “base” industry clusters—those that export products and services to customers outside the region. These industries are responsible for a much larger share of growth in wages, productivity, and jobs. Base industries are thus a natural target for strategic investment of limited economic development resources. Humboldt County's base industries were identified as:

- Forest products
- Education and research
- Tourism

- Niche manufacturing
- Dairy and dairy processing
- Specialty agriculture
- Fisheries, fish processing, and aquaculture
- Information technology
- Arts and culture.

Of these base industries, management of the Lacks Creek Management Area has potential links to three (tourism, forest products, and fisheries). The economic development strategy also recognizes that “quality of life is one of Humboldt County’s most important assets for economic development. Rivers, beaches, forests, mountains, and a community “sense of place” are highly attractive to talented, innovative, creative young people who are deciding where to live and start a business” (Humboldt County, 1999).

The current population in Humboldt County is approximately 127,700 people. Historically, population shifts in the North Coast have been closely tied to changes in the timber industry, but since 1970 or so this relationship has become more complex due to the diversifying economy of the region. From 1970 to 2002, population growth in Humboldt County (28 percent) lagged behind the State (75.4 percent). This pattern also holds in recent years; between 2000 and 2002, population growth in Humboldt County (0.9 percent) was less than one-third of the State (3.4 percent). Future population growth in Humboldt County is expected to remain moderate, with just over 20,000 new residents expected through 2040 relative to year 2000 conditions; this represents a population increase of 16 percent over the next forty years. In contrast, growth projections for the state are much higher (33 percent increase to 55 million by 2040) (California Department of Finance Research 2008). Since most visitors to Humboldt County come from other areas of California, this will cause increased demand for access to area public lands.

#### Low Income and Minority Populations

Minority populations make up only 18 percent of the population of Humboldt County, compared to over 50 percent for the state as a whole (see Figure 2-3). The county has a higher poverty rate (19.5 for County vs. 14.2 percent for CA) and lower per capita income (\$23,237 for county vs. \$32,149 for CA) (U. S. Census, 2000)

Figure 2-3

Humboldt County Population by race (Source U. S. 2000 Census -- <http://quickfacts.census.gov/qfd/states/06/060231k.html>)

White	103,230	81.6
Black or African American	1,111	0.9
Hispanic	8,210	6.5
American Indian and Alaska Native	7,241	5.7
Asian	2,091	1.7
Native Hawaiian and Other Pacific Islander	241	0.2
Some other race	4,394	3.4
Total Population	126,518	100

Among local minority populations, Southeast Asian immigrants, primarily from the Hmong community, use public lands in the region for hunting and special forest products gathering; although their current use of Lacks Creek for these activities is limited (pers. Comm.. Knisley, 4/3/08). Almost all of the commercial mushroom harvesting permits issued by the Arcata Field Office have applicants with Southeast Asian surnames. Unfortunately, the experience of the Hmong culture as refugees has resulted in their mistrust of government, which has led to limited communication of their needs and preferences for public land management.

Lacks Creek is located immediately west of the Hoopa Valley Indian Reservation, and is easily accessible from the town of Hoopa via the Bair County Road. Tribal members regularly use the area for hunting (personal communication, Knisley, 4/3/08). The BLM also has maintained a cooperative agreement with the tribe to employ members for various forest stand improvement projects.

## **2.8 Fisheries, Riparian and Water Quality**

Lacks Creek supports populations of Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), coastal cutthroat trout (*Oncorhynchus clarkii*), and Pacific lamprey (*Lampetra tridentata*). The Chinook salmon population is a fall-run population, part of the California Coast Chinook Salmon Evolutionarily Significant Unit (ESU) (CC Chinook), which is listed as “threatened” under the federal Endangered Species Act (ESA). Bjorksteadt et al. (2005) has categorized the Chinook salmon population in Redwood Creek as a “Functionally Independent Population” in their analysis of historical salmon population structure. The coho salmon population is part of the Southern Oregon/Northern California Coasts ESU (SONCC coho) and is listed as “threatened” under the federal Endangered Species Act (ESA). Williams et al. (2006) categorized the coho salmon population in Redwood Creek as a “Functionally Independent Population” in their analysis of historical salmon population structure. Redwood Creek supports both winter- and summer-run populations of steelhead. Although no confirmed sightings of summer-run steelhead are reported from Lacks Creek, California Department of Fish and Game (Canata et al. 2006) does report that lower Lacks Creek contains some deep pool habitat which is the preferred summer habitat for summer-run steelhead. The steelhead population is part of the Northern California steelhead ESU (NC steelhead). Bjorksteadt et al. (2005) has categorized both the winter- and summer run populations in Redwood Creek as a “Functionally Independent Population” in their analysis of historical salmon population structure.

Canata et al. (2006) reports that anadromous fish can access the lower 4.5 miles of Lacks Creek. Electrofishing surveys conducted by California Department of Fish and Game (CDFG) (Canata et al. 2006) found that Lacks Creek was one of the mid-basin Redwood Creek tributaries with the highest densities of young-of-the-year steelhead. Canata et al. (2006) also reports that lower Lacks Creek is among the best spawning areas for Chinook salmon in the Redwood Creek basin. Coho salmon have been observed in Lacks Creek but were absent during 2001 electrofishing surveys (Canata et al. 2006). No estimates of population sizes have been conducted and thus the number of anadromous salmonids and any trends in abundance are unknown.

Summer water temperatures were monitored from 1997 to 2001. In 1997, the Mean Weekly Average Temperature (MWAT) in lower Lacks Creek was 67 °F. The desirable maxima for MWAT is 64 °F, thus summer water temperatures in the lower portions of Lacks Creek probably impair rearing habitat for juvenile salmonids.

Stream habitat surveys have been conducted periodically since 1966. Stream habitat trends have been altered episodically in response to large flood events which cause large-scale erosion. Canata et al. (2006) reported that Lacks Creek lost a significant portion of its pool habitat between the 1995 surveys and the 2001 surveys. Madej (2001) suggests that a large flood which occurred in 1997 in the Redwood Creek basin likely mobilized bedload and changed channel morphology thus reducing the proportion of pool habitat. Along with the decrease in pool habitat came an increase in riffle habitat (as noted above, Lacks Creek does retain a few deep pools). Some portions of Lacks Creek have very low riparian canopy coverage. Canata et al. 2006 reports that the great majority of riparian canopy is comprised of deciduous trees rather than conifers.

Approximately 4,400 acres within the Lacks Creek watershed was acquired from private timber companies in 2005. The acquired land had been managed for industrial timber production and is heavily roaded. Canata et al. 2006 estimates that approximately 94 percent of the watershed was logged between 1950 and 2000 with the bulk of the logging occurring between 1950 and 1964. In general, much of the terrain in Lacks Creek is highly erodible. The majority of the Lacks Creek watershed has been rated “high” or “very high” for landslide potential by California Geological Survey (Canata et al. 2006). A recent analysis (Canata et al. 2006) showed significant increases in streamside landslides in lower Lacks Creek between 1984 and 2000.



*Photo 2-3: Past logging along Lacks Creek has resulted in landslides and lack of riparian canopy cover.*

A sediment source inventory conducted from 1999-2002 found 74.5 miles of roads in the watershed (Bundros et al. 2003). CDFG (Canata et al. 2006) reports that the proportion of roads located on unstable terrain in Lacks Creek were among the highest in the middle Redwood Creek subbasin. The Bundros et al. (2003) survey found a total of 412,050 cubic yards of sediment from treatable (e.g. potentially preventable) road and road-related sediment sources. The timing of erosion from these sources would likely be in association with large storms and floods with the magnitude of erosion likely correlated with the magnitude of the flood event.

#### *Fish, Riparian, and Water Quality Trends*

Given the high proportion of roads on unstable lands and the large volume of potential sediment from road-related features it is likely that future large flood events will bring large-scale erosion into the stream channels. The magnitude and timing of such erosion cannot be accurately predicted but it is reasonably certain to eventually occur. Increased sediment into the channels will continue to reduce the proportion of pool habitat as well as the depths of pools. In addition, increased bedload results in increased channel width and increased bedload movement which tends to increase bank erosion and decrease riparian vegetation.

The effect of these erosion and channel processes on fish habitat is to decrease the quantity and quality of rearing habitat for juvenile salmonids due to a loss of complexity within the channels. Large scale erosion may lead to a decrease in pool habitat, pool depth, riparian canopy, large

woody debris, spawning habitat, and an increase in summer water temperature. Decreases in rearing habitat could lead to decreases in the production of anadromous salmonids in Lacks Creek.

## 2.9 Wildlife

The majority of the Lacks Creek Management Area has been owned by several private landowners throughout the years with a primary focus of timber management. The northeastern part of the watershed contains an area of late successional habitat (Lacks Creek ACEC/RNA) that provides habitat for species requiring old-growth forest characteristics. Areas of mature forest and woodland habitats can be found south of the ACEC/RNA on the east side of Lacks Creek. Extensive forest management is not required within these areas as they currently provide suitable habitat for species requiring old-growth and woodland forests. The area west of Lacks Creek was harvested extensively prior to BLM ownership. This area is dominated by young dense stands of tan-oak (*Lithocarpus densiflorus*) and Douglas fir, and would require thinning treatments to promote late successional forest qualities.

The wildlife habitat goals in the Arcata RMP are for Lacks Creek to be managed as a Late-Successional Reserve (LSR) utilized primarily by wildlife species that depend upon mature conifer/oak forests, prairies and oak woodland habitats. Previously harvested stands located throughout the acquired lands currently do not provide for this habitat. Federally listed and candidate wildlife species that would benefit from mature forest habitat include; the northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), and Pacific fisher (*Martes pennananti*). The spotted owl and marbled murrelet are listed as “threatened” under the federal Endangered Species Act (ESA). The fisher was petitioned for federal listing in December of 2000. The U.S. Fish and Wildlife Service (FWS) conducted a 12 month status review and determined that a listing was warranted but precluded by higher priority listing actions. The fisher is currently on the federal “candidate” species list. The management area is also within the range of the western yellow-billed cuckoo (*Coccyzus americanus*), a “candidate” for federal listing, but does not contain suitable habitat for this bird.

Northern spotted owl critical habitat (Unit 19) and marbled murrelet critical habitat (CA-11-a) were designated within the management area. Critical habitat primary constituent elements consist of forested lands that are used or potentially used by spotted owls and murrelets for nesting, roosting, foraging, or dispersing. The entire management area was established as a Late Successional Reserve under the Northwest Forest Plan (USDI-USDA 1994).

The northeast corner of the management area contains approximately 1,300 acres of suitable nesting, roosting and foraging habitat for the spotted owl (USDI 1995). Nesting habitat consists of cavities or broken tops of conifers found in mature or old-growth forests. Spotted owls forage in most forest habitat types provided the density of trees allow for sub-canopy flight. In 2006, surveys were conducted in areas of proposed forest thinning projects with no owls being detected. In 2007, protocol surveys were conducted within areas of suitable habitat throughout the management area; one owl was detected.

Suitable nesting habitat for marbled murrelets is located on eastern tributaries of Lacks Creek. Marbled murrelets do not construct nests; therefore they require large diameter limbs with a

moss or lichen substrate that provides suitable platforms to lay an egg (Hamer and Nelson 1995). In 1997 and 1998, extensive surveys for marbled murrelets were conducted within the original BLM ownership. Marbled murrelet activity was identified at one out of 26 survey locations. Marbled murrelet activity was also documented at this survey location during an opportunistic survey in 1995. In 2007, opportunistic surveys were conducted at nine locations within suitable habitat throughout the management area. Marbled murrelets were not detected during these surveys.

The management area contains suitable denning, resting and foraging habitat for fishers. Habitat composition within individual fisher home ranges generally includes a mosaic of forested habitats of varying age and tree size classes, and often includes non-forested habitats. The mosaic of habitats within fisher home ranges also includes high proportions of mid to late-seral forests with moderate to dense canopy cover. Fishers forage in clearings and in and around logs and utilize snags with cavities for reproductive and resting dens. Fishers have been documented within and surrounding the management area. The Hoopa Valley Indian Reservation (Hoopa), a 90,000 acre parcel located east of the management area, has been conducting fisher research since the 1990's. Track plate surveys have revealed the highest detection rate for fishers in California. In 1997, the fisher population on Hoopa was estimated at 100 individuals (Higley, pers communication). Fisher track plates, hair snares and cameras were installed at ten sites in the Lacks Creek management area in June of 2008. Preliminary data confirms fisher presence. Formal surveys, inventories and habitat assessments will continue throughout the management area.

There are several small prairies scattered throughout the management area totaling 102 acres. The prairies provide grasses, forbs, and brush for foraging black-tailed deer (*Odocoileus hemionus columbianus*) and Roosevelt elk (*Cervus elaphus roosevelti*). There is evidence of elk use within several of the prairies however; larger more suitable habitats are located on private lands adjacent to the management area. Other species that may also utilize these prairies include; turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), big brown bats (*Eptesicus fuscus*), striped skunks (*Mephitis mephitis*), coyotes (*Canis latrans*), brush rabbits (*Sylvilagus bachmani*), moles, pocket gophers, mice, and voles (Harris and Harris 1979, Mossman 1979). Although small in size, these prairie habitats provide a diversity of wildlife habitat from the surrounding conifer forest. The prairies located within Lacks Creek are being encroached by conifers and are at risk of being completely overgrown.

The oak woodland habitats found within the management area provide an element of diversity that attracts a variety of wildlife. The oak woodland habitats attract disseminators of acorns which include; scrub and Steller's jays (*Cyanocitta stelleri*), acorn woodpeckers (*Melanerpes formicivorus*) and western gray squirrels (*Sciurus griseus*). This area may also attract species that utilize acorns as a major food source including; wild turkey (*Meleagris gallopavo*), mountain quail (, band-tailed pigeon (*Columba fasciata*), California ground squirrel (*Spermophilus beecheyi*), dusky-footed woodrat (*Neotoma fuscipes*), black bear (*Ursus americanus*), and deer (McDonald 1988). These woodlands also provide grazing for deer and elk.

## 2.10 Vegetation including Forest Management

### A. Prairies (grassland/oak woodlands)

The grassland/oak-woodland prairies within the Lacks Creek Management Area are representative of the California oatgrass series described in *A Manual of California Vegetation* by Sawyer and Keeler-Wolf. California oatgrass (*Danthonia californica*) is the dominant grass along with many other perennial native grasses and herbaceous species with Oregon white oak (*Quercus garryana* var. *garryana*) as the predominant tree associate. The California oatgrass series commonly intergrades with the Oregon white oak tree series at a coarser scale which includes black oak (*Quercus kelloggii*), Douglas-fir and California fescue (*Festuca californica*).

White and black oaks grow in full sun and commonly host a perennial grass understory. The presences of oaks within and around the edges of perennial grasslands assist in the maintenance and distribution of prairies. Oaks within prairies are typically single (Stein, date N/A) or in clusters of a few trees. White oaks are very intolerant of shade, so are replaced over time by taller growing conifers and hardwoods on well-drained, moist soils (Sawyer and Keeler-Wolf, 1995).

Traditionally and for the last 10,000 years or so, California grassland prairies with their accompanying oaks have been sustained naturally through limitations in soils that restrict more competitive, taller species, grazing by native herbivores, and lightning caused fires. Culturally, any given stand of grass was probably burned by Native Americans every 2-5 years (Greenlee and Langenheim, 1990). If a grass stand missed fire for a decade or so, it might have been covered with early seral shrubby vegetation, but the grasses could resurface after the next fire cleared the brush. Fire regimes in prairies have more recently been maintained by pioneer cattle and sheep ranchers. The last known burn that likely affected Faulker prairie occurred in 1944 and was caused by a sheep rancher who was burning lands south of the management area that had escaped (Bob Barnum, personal communication). There have been no fires that affected the existing prairies around the Lacks Creek Management Area since then, and as a consequence, the remnant existing prairies are rapidly being encroached upon and displaced by conifers. Faulkner prairie, likely the last to have been burned, is the largest remaining prairie in the management area.

There are 10 prairies within, or partially within, the Lacks Creek Management Area. Together, they comprise 102 acres of the grassland/oak woodland type on BLM managed public lands. The smallest remnant prairies are 3-4 acres in size; and the largest remaining prairies are Preston, Pine Ridge, and Faulkner prairies at 12, 26, and 31 acres in size, respectively. All of the remaining prairies are under encroachment pressure by conifers and other forest hardwoods, such as tanoak, which shade out grasses and the white oaks.

White oaks, as well as black oaks, are a vital component of the grassland vegetation type in the Lacks Creek Management Area, but, they are rapidly being shaded out. Large oak branches are showing signs of mortality in many areas. Without management intervention, it is likely that the majority of the existing Lacks Creek prairies will be lost. Greater than one third of the prairies have been lost to encroachment since 1958, see Figure 2-4 below.

Figure 2-4: Acres of grassland/oak woodland prairie on BLM lands within the Lacks Creek Management Area.

Prairie	2005 acres	1958 acres	% Change Between 2005 and 1958 (rounded to nearest whole number)
Faulkner	31.5	50.4	38% decrease
Preston	12.4	14.2	13% decrease
Round	3.0	5.4	44% decrease
Flyette	5.6	11.5	51% decrease
Kit*	3.8 of 10	3.8 of 10.8	No Significant Change
Sidehill	5.4	8.1	33% decrease
Last	4.0	6.9	42% decrease
Pine Ridge	26.0	27.9	<1% decrease
Hundred acre field*	5.3 of 57	14.3 of 84.8	37% decrease
Beaver Ridge prairie	5.1	10.1	50% decrease
TOTAL	102.1	159.6	36% decrease overall

*\*Prairie ownership is divided; therefore, acres are reported as public land acres of total prairie acres.*

In the fall of 2007, the BLM conducted initial grassland conservation efforts limited to removing small and young Douglas-fir trees that have encroached into the existing prairies. Only Douglas-fir trees that were less than eight feet tall were removed. Efforts were in all prairies but Kit prairie.

The most historic aerial photos of the Lacks Creek Management Area are from 1958. This year serves as a convenient baseline for resource management and analysis because changes in cultural practices upon the prairies occurred about the same time. Cultural burning practices ceased, replaced by the new era of post World War II fire suppression. Further, intensive sheep grazing in the area was phased out as a result of predation problems and a more favorable cattle market.

Native grasslands and oak woodlands across the state continue to dwindle under a culture of fire suppression, urban sprawl, and pressures from over-grazing and invasive weeds. Oak influenced grasslands provide a habitat full of botanical resources that provide valuable sources of food and shelter for wildlife. Stein (1997) states that open canopy stands generally have a more complex plant understory than closed canopy stands and hence can support more diverse wildlife species.

Prairies serve as a food source and refuge for upland game, other herbivores, and their respective predators. Prairies also provide opportunities for dispersed recreation seekers such as naturalists and hunters.



*Photo 2-4: Prairie showing encroachment of conifers.*

#### B. Bureau Sensitive Vegetation Species

Bureau Sensitive Species (BSS) include federally and state listed rare, threatened or endangered species, as well as those listed by the California Native Plant Society as 1B (Plants rare, threatened, or endangered in California and elsewhere). BSS species that have habitats or recorded occurrences in the management area were compiled by consulting the California Department of Fish and Game (CDFG) California Natural Diversity Database (CDFG 2002), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001), and from internal survey data associated with the Northwest Forest Plan Survey and Manage Species Program. The assessment area was defined as the USGS 7.5' quadrangles in which the project is located (Hupa Mountain and Lord Ellis Summit Quads), as well as the ten adjacent quadrangles (Blue Lake, Korbel, Maple Creek, French Camp Ridge, Bald Hills, Panther Creek, Weitchpec, Hoopa, Willow Creek, and Grouse Mountain). *RareFind 2*, the CNDDDB electronic database, was used to query known occurrences (March 30, 2008 online

government edition). The queries yielded nine BSS previously documented in the regional assessment area (Figure 2-5).

Figure 2-5. Bureau Sensitive Plant Species with the potential to occur in the Lacks Creek Management Area, CNPS Rankings and Presence.

Scientific Name	CNPS Rank	Present in Management area
Vascular bureau sensitive species		
<i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i>	1B.2	Absent
<i>Bensoniella oregona</i>	1B.1	Absent
<i>Epilobium oreganum</i>	1B.2	Absent
<i>Eucephalus vialis</i>	1B.2	Absent
<i>Gilia capitata</i> ssp. <i>pacifica</i>	1B.2	Absent
<i>Iliamna latibracteata</i>	1B.2	Absent
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	1B.2	Absent
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	1B.2	Absent
<i>Thermopsis robusta</i>	1B.2	Absent
Non-Vascular bureau sensitive species		
<i>Lobaria oregana</i>	N/A	Present
<i>Ptilidium californicum</i>	N/A	Present

Repeated field surveys in the management area have not resulted in positive findings for the above listed vascular species in Table 1. However, two non-vascular, bureau sensitive plant species are known to occur in the watershed; a bryophyte, *Ptilidium californicum* (Pacific fuzzwort) and a lichen, *Lobaria oregana*.

*Lobaria oregana* is a foliose lichen found on limbs and boles of moist, older conifer/hardwood forests. Its range is from Alaska to northern California. The major threat to this species is logging.

*Ptilidium californicum* occurs on bark at the base of older conifers usually between 2,300' to 5000', in generally cool, damp habitats on the west coast of North America from southeast Alaska to northern California. Threats to this species include alteration of microsite conditions, removal of host trees, and spray paint used to mark trees for timber harvest if sprayed directly on a colony.

### C. Invasive, non-native plant species

French broom (*Genista monspessulana*) is present in the management area. French broom is generally found along roadside margins but can spread rapidly in adjacent disturbed areas, open canopied forest understories, and especially prairies.



*Photo 2-5: Falkner Prairie with west slope of Lacks Creek in background. Areas of late successional Douglas-fir forest and oak woodlands are visible on the upper slopes.*

#### D. Forests and Forest Management

The Lacks Creek watershed is the northernmost sizable parcel of BLM managed public lands in the California Coast physiographic province and contains mostly Douglas-fir/tanoak series vegetation on relatively high site potential. The watershed is a designated Late-Successional Reserve (LSR). Lacks Creek was historically a timber production area. On the original public lands there have been eight timber sales since 1957 involving 510 acres. The last two sales were completed in the 1980's and since 1989 no additional timber sales have been conducted.

Vegetation occurs in mostly five series; tan oak, Douglas-fir, grass, white oak and canyon live oak (*Quercus chrysolepis*). The majority of the area is dominated by the tanoak and Douglas-fir series covering approximately 90 percent of the public lands. Vegetation series consisting of grass lands, white oak, canyon live oaks and rock outcrops occupy the remaining ten percent of the watershed. White oak and canyon live oak are components of forest diversity and occupy primarily south and west aspects. These oak habitats were historically maintained by a fire regime and are now being encroached upon by Douglas-fir and tanoak.

The area can be stratified with respect to vegetation seral stages and historic land uses from north to south and east to west. The northeast portion of the watershed within the ACEC/RNA has not been harvested and consists of mostly mature forest stands. The area is entirely un-roaded and contains all natural stands. The area immediately to the south of the ACEC and east of Lacks Creek including the approximately 1,200 acres acquired in 1983 from Simpson Timber Company

have been mostly harvested and contains only small areas of remaining mature forest stands. The area to the east of Lacks Creek, though occupied by extensive stands of late successional forest and young managed forests, contains large areas of skeletal soils that support limited vegetation. Formerly private lands that were clear cut have variable or insufficient conifer stocking, or may be suppressed by other species such as tanoak.

The area to the west of Lacks Creek comprises most of the newly acquired land from Barnum Timber and Eel River Sawmills and has a long history of intensive forest management for commercial timber production. These newly acquired lands have very productive forest soils and are capable of producing large conifers and hardwoods, both in height and in diameter size. These lands contain mostly young stands of Douglas-fir, redwoods and a very large component of hardwood stands consisting mostly of tanoak.

Historic logging initially “high graded” the most economic and accessible timber available and was later followed by complete overstory removal. Logging in the area started in the late 1940’s and until the early 1970’s little acreage was ever replanted or managed following logging. Most of the true old-growth or mature forest was harvested in the late 1950’s and 1960’s, with some additional harvesting occurring periodically up through the early 1990’s. The subsequent stands from the earlier logging were dominated by resprouting tanoak and today are extensive hardwood stands with only a minor conifer component. Since the 1970’s, when the California Forest Practice Act was enacted, forest management practices on the acquired lands changed with an emphasis on replanting the logged areas with conifers and controlling the hardwood competition by complete removal of hardwoods by harvest or herbicide. The 1,842 acres acquired from Barnum Timber have been extensively managed with a focus on complete hardwood removal by harvest or herbicide treatment followed by replanting with Douglas-fir and redwoods with subsequent stand maintenance to control tanoak competition. Today, there are approximately 126 acres of well stocked conifer plantations on the lands formerly managed by Barnum Timber. These plantations are stocked with Douglas-fir and redwood. Barnum Timber successfully introduced redwood seedlings on portions of their lands where there were no redwood naturally occurring.



*Photo 2-6: Douglas-fir plantation on lands acquired from Barnum Timber.*

The 2,403 acres acquired from Eel River Sawmills are dominated by a large tanoak component. All timber harvest plans met the regulations under the Forest Practice Act; however, very little additional silvicultural treatments were initiated to manage the lands for growth potential and species composition. As a result the acquired lands from Eel River Sawmills do not have the same tree species composition as existed before harvesting started in the late 1940's and will need further silvicultural treatment for late successional forest stand characteristics to develop in a reasonable time period.

Of the original 2,900 acres in public ownership, 510 acres have been impacted by timber harvesting. Almost all of these acres are located to the east of Lacks Creek and to the south of the ACEC/RNA. All of the acres have been regenerated and have developed into pole size stands. These acres have had numerous stand entries and exhibit a variety of harvest strategies

and follow-up silvicultural treatments leaving a varied and dynamic legacy. All of the silvicultural treatments were designed to accelerate the development of late successional forest characteristics. To date, approximately 250 acres have been treated.

## **2.11 Livestock Grazing**

The Lacks Creek Management Area currently contains no BLM authorized grazing. However, the recently acquired public lands and surrounding private lands have been historically grazed. The following discussion is focused on these private operations. There are two separate grazing operations; one to the north of the Minor Creek drainage, also referred to as the "Hoopa side", that extends north to the boundary that is the Stover Ranch land holdings and that also surround the western, southern and southeastern boundaries of the Management Area; and the other is entirely south of the Minor Creek drainage on the Nixon Ridge side. For the remainder of the discussion, the Nixon Ridge herd (about 85 cow/calf pairs) will not be discussed because they do not come north of the Minor Creek drainage as it is too steep. If there was a breach by the Nixon Ridge herd (or the Hoopa herd), the only location would be the south side of "Cow prairie" just north of Minor Creek where the grassland comes fairly close to the creek. Both herds are run by the same lessee, and are year-round cow/calf operations. The discussion below describes livestock use patterns that are occurring based on historic use patterns when the area was under private ownership.

The "Hoopa side" herd consists of approximately 70 cow/calf pairs. Calving season begins the last week of December through mid-March. In the spring (March/April) cattle are gathered to the Bull pasture for about 1-3 weeks to vaccinate, brand, etc. before returning them to the range. Bulls are turned out onto the range March 1st until all livestock are gathered and sorted in the fall for market. The rest of the season, the bulls are in the fenced bull pasture along the County road on private property. Working ranch horses are also grazed out on the pastures.

Currently there are no fences that enclose the ranch. Livestock movement is distributed and contained through locations of water/salt sources. Areas that livestock visit within the Lacks Creek Management Area are Faulkner prairie, Preston prairie, and the Pine ridge area from time to time.

Faulkner prairie: Historically, there has been a water/salt development maintained at Faulkner prairie. Occasionally, livestock do wander to Faulkner prairie, and the most gathered there in recent years were four pair. Besides the road leading to Faulkner prairie; there are many livestock trails leading in and out of the prairie that are accessible to livestock. Horses do not access this prairie.

Preston prairie: In fall of 2005, cattle were gathered from Preston prairie. There is a wire gate that crosses the road to the prairie in a location that if closed, can prevent livestock from drifting. Often the gate is left open, and livestock can drift into the prairie. There is no developed water there, but plenty of undeveloped sources.

Pine ridge area/Lacks summit: The livestock operator prefers that stock do not go to this area, because the last gathering corrals are at Pine Ridge summit and if they go north or east of there,

they can go all the way to the Stover ranch which is a considerable distance for locating them and to drive them back. The operator would like to be notified immediately if cattle are seen in this vicinity.

The livestock operator has expressed an openness to working with BLM on any distribution issues. If cattle are desired to maintain the prairies, the livestock operator can make livestock available for use as a vegetation management tool. If cattle use is not prescribed on BLM managed public lands at all, water/salt developments in other areas, as well as reducing availability of water/salt in Faulkner prairie, can have an immediate impact on the likelihood of cattle dispersal.

In general, livestock are widely distributed in the spring and hard to find because water is available everywhere. In the fall, livestock are easier to find because they won't be far from dry season water sources. In the fall, to find livestock, one needs to look no farther than water.

## **2.12 Areas of Critical Environmental Concern/Research Natural Areas**

ACECs are areas of public land where special management attention is required to protect important natural and/or cultural resource values. The BLM is required to consider designation of ACECs under Section 202(c)3 of the Federal Land Policy and Management Act (CFR 1610.7-2).

In order for an area to be designated as an ACEC, both of the following criteria must be met:

- **Relevance:** The area must have a significant cultural, historic, scenic, wildlife, fish, or other natural system or process.
- **Importance:** The above value, resource, process or system must be distinctive and be of greater than local significance.

RNAs are a specific subset of ACECs designated to: 1) protect examples of significant natural ecosystems for comparison with those influenced by humans; 2) to provide educational and research areas for ecological and environmental studies; and 3) to preserve gene pools of typical and endangered plants and animals. RNAs can be used for research and baseline data gathering on relatively unaltered community types. Management actions may be taken to maintain the unique features for which the RNA was established. Compatible public uses are permitted in RNAs.

The Lacks Creek management area contains one ACEC and one ACEC/RNA designated under the Arcata Resource Management Plan:

**Lacks Creek Watershed ACEC (7,377 acres):** This ACEC encompasses all BLM managed public lands within the watershed, and recognizes the importance of Lacks Creek as a component of the Redwood National and State Parks Protection Zone, and as a salmonid spawning stream. Also, the designation recognizes the need for special management in the watershed to restore

impacts from past uses. Any lands that the BLM acquires within the watershed are added to the ACEC under the direction of the Arcata RMP.

Lacks Creek Old-Growth ACEC/RNA (1620 acres): This area encompasses the majority of the remaining late successional forest in the watershed. Much of the low-elevation Douglas-fir forest in northwest California has been harvested, and the remaining stands within Lacks Creek are part of a system of ACECs/RNAs on public lands in the region that were designated to protect these remaining late successional stands.

Note that the Old Growth ACEC/RNA “overlays” the watershed ACEC, so the total acreage of the two areas is not additive.

## **2.13 Recreation Resources and Transportation**

Lacks Creek is located less than an hour from the communities surrounding Humboldt Bay (approx. 100,000 residents). However, the area has received relatively light recreation use in the past due to its small size and lack of recreation attractions/facilities. The acquisition of additional lands in the area has increased interest in the area by local recreation enthusiasts who are interested in additional opportunities for day trips to areas offering dispersed activities. The undeveloped lands surrounding Humboldt Bay communities are primarily private timberlands and unavailable for public access. Lacks Creek is one of the closer blocks of undeveloped publicly accessible areas to the communities.

All public lands within the management area are currently open year round to recreation use. There are currently no area-specific use restrictions other than off-highway vehicle use regulations that limit vehicle use to Pine Ridge Road and maintained spur roads. Approximately 10 miles of maintained road are designated open for public motorized recreation use, all of which exist on the east side of Lacks Creek. The maintained roads on the west side of Lacks Creek (newly acquired lands) are closed to public vehicle use as the access route connecting to these roads crosses private lands, and the BLM only acquired administrative access through his property.

The 6.25-mile Pine Ridge Road and spurs are well maintained (graded, ditch cleaning, brushing, waterbarring) at least once a year, providing safe motorized vehicle travel for a variety of uses, including access for hunting, camping, driving for pleasure (sightseeing), hiking, and to a lesser extent, horseback riding. The road can be accessed by a variety of vehicle types including two and four-wheel-drive passenger vehicles, motorcycles, and All Terrain Vehicle's (ATVs). The now named Lacks Creek Road was recently maintained for approximately 0.75 of a mile to provide vehicle access as part of a firewood cutting area (see Map 3-2). This road is now maintained for motorized recreation use to the firewood cutting area. The Midslope Road is also currently designated open to vehicle use and was recently brushed out and partially graded to provide passage for 4WD vehicles, motorcycles, and ATV's only. This road is washed out and impassable at the 3.0 mile mark and cannot be traversed by any type of motorized vehicle beyond this point. Overall motorized recreation use is estimated at 250 visits annually.

Visitors access the management area via the Bair county road. This graveled road is maintained on an annual basis by the Humboldt County Public Works Department. Work includes grading, cleaning inboard ditches, keeping culverts functioning properly, and rocking where necessary. Although only a small number of residents use the road to access their private properties, it is an important access route into Hoopa Valley in the event Highway 96 becomes impassable. The county maintains the road during the winter, although during heavy snow periods the route may remain unplowed for several days to a week or more. Use volume appears to be low, averaging between 10 and 30 vehicles per day. This estimate is based on discussions with county staff, visual observations of other vehicles using the road, and evidence of road deterioration (wash-boarding) during the past several years.

Current non-motorized recreation activities include hunting, hiking, and overnight camping, almost all of which occur adjacent to the road network east of Lacks Creek. Use on the west side of the watershed is low because of the newness of the acquisition, the lack of a constructed and marked access route, and the few old abandoned logging roads are not easily accessible, nor have they been promoted or signed for such uses. Most non-motorized use off existing roads is accounted for by hunters but even this activity is limited primarily to the large grassy coastal prairies as the other areas are too steep and brushy.

Nearly 92 miles of road exist on the newly acquired lands on the western side of Lacks Creek. Overall use is extremely low, however, this is due to the lack of a maintained travel corridor connecting the east side of Lacks Creek to the west side. The sheer distance and difficulty in traveling through steep terrain and thick brush makes it almost impossible at the present time to reach this road network. Also, many of the roads themselves are brushed over. A connector trail route to the west side was laid out and partially constructed in 2006, and completion of this trail will result in increased accessibility of the west side – completion has been delayed until the BLM can implement additional efforts to minimize trespass onto private lands (signing, gates etc.).

Many of the roads on the east side are washed out where culverts have failed, some road segments have landslides which make them impassable, and others have become overgrown, making it even more difficult for non-motorized recreation use to occur. Opportunities exist to connect some of these roads with short sections of newly constructed trail, thus providing loop trails. The large network of roads also provides opportunities to separate conflicting uses. Overall non-motorized recreation use is estimated at 200 visits annually.

## **2.14 Visual Resources**

An inventory of visual resources was conducted for input into the planning process. The scenic quality of the landscape, sensitivity of people to changes in the landscape, and viewing distance were assessed and evaluated to determine these “Visual Resource Management Inventory (VRM) Classes”. To evaluate scenic qualities, the management area was divided into subunits based on relatively homogeneous landscapes. Each subunit was then evaluated by seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, cultural modifications) and then ranked as either Class A (most scenic), Class B (somewhat scenic), and Class C (unattractive). Class A areas include the old-growth ACEC, Lacks Creek and adjacent inner gorge, un-harvested forest stands, and the oak woodlands. Class B areas include the prairies and un-

harvested (or larger second-growth) forest land outside the old-growth ACEC, and Class C areas include recently cutover lands. Sensitivity levels were based on visitor use and public attitudes or concern for particular sites or areas. The old-growth ACEC, oak woodlands, prairies, road and trail corridors, and campsites were rated highly sensitive, and the remainder of the management area was rated low. Rating of viewing distance was determined to be inconsequential because there were no “critical” viewpoints identified. Inventory classes serve as a starting point to determine VRM Management classes through the planning process. For example, a VRM Inventory Class II area may be designated as a VRM Management Class III under the plan to allow for more intensive management activities. In contrast, the plan could establish a long-term goal to restore some VRM Inventory Class III lands (where the class was based on landscape modifications) through restoration efforts. The objectives of the various VRM management classes are as follows:

*VRM Management Classes (USDI BLM, 1980)*

Class 1: The objective of this class is to preserve the landscapes outstanding and pristine visual qualities. This class is normally reserved for portions of wild and scenic rivers, wilderness areas, national monuments, etc. No land within the management area rated as Class 1.

Class 2: The objective of this class is to retain the landscape’s existing character. Management activities and uses can be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture in the predominant natural features of the characteristic landscape. Areas to be managed under Management Class 2 are the old-growth ACEC, prairies, and oak woodlands.

Class 3: The objective of this class is to partially retain the landscape’s existing character. The level of change can be moderate. Management activities and uses may attract attention, but should not dominate the view of the casual observer. The remainder of the management area will be managed under Management Class 3.

When projects or actions are proposed in the management area, a visual contrast rating is conducted, if necessary, to ensure that they are designed and located to meet the area’s VRM Management Class objectives.

## **2.15 Wild & Scenic Rivers**

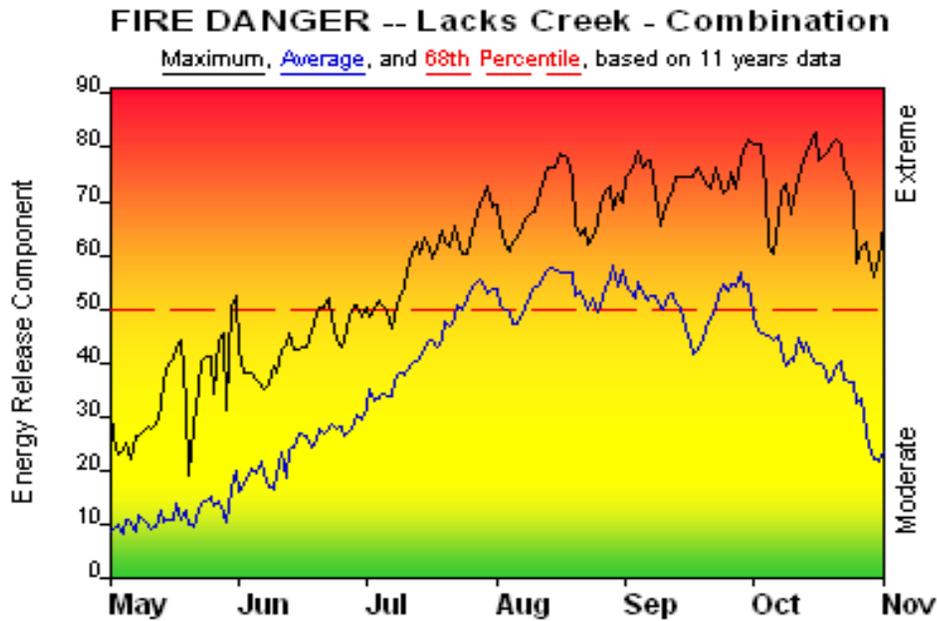
The BLM evaluated potential additions to the National Wild and Scenic River System through the development of the 1995 Arcata Planning Area RMP Amendment. Approximately four miles of Lacks Creek was found to be eligible for inclusion into the system. The river segment was classified as “wild”. Identified outstanding river values include suitable spawning and/or rearing habitat for indigenous salmon and steelhead, and old-growth forest wildlife habitat. Management of this portion of Lacks Creek must protect and enhance the values which made it eligible. The identified outstandingly remarkable values for Lacks Creek include spawning habitat for anadromous fish, and old-growth forests and associated wildlife values. Additional management criteria for wild river segments include: no impoundments; generally inaccessible except by trail; no provisions such as roads; shorelines essentially primitive; and little evidence of human activity.

## **2.16 Fire Management**

In the Redwood Valley area, Native Americans traditionally used fire to increase the amount of seeds, basket making materials, and forage for deer and elk. Fire has been used in the Lacks Creek Management Area by ranchers to enhance grazing and by timber companies to reduce slash.

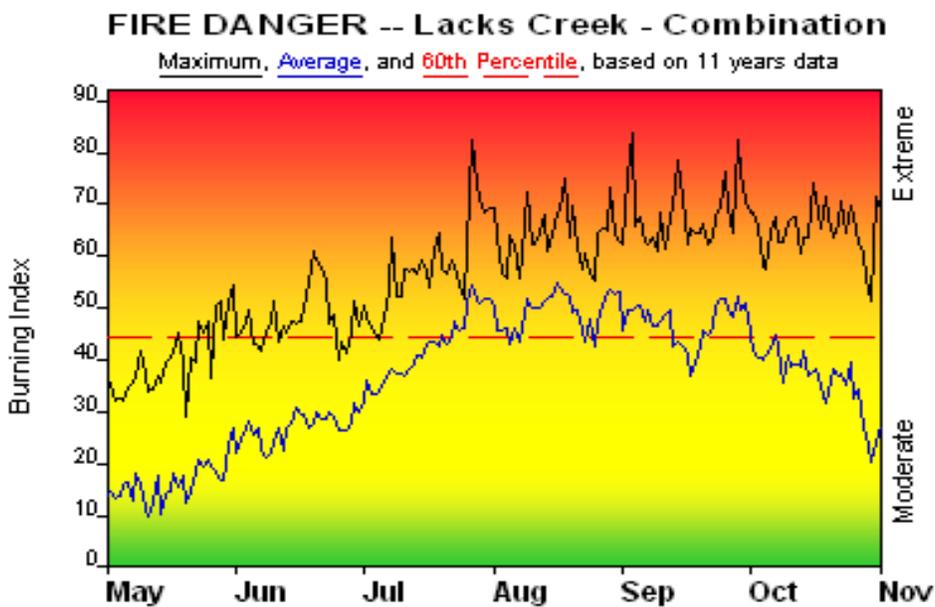
Analyses of fire records show no wildfires within the management area from 1908 to the present. In that time there have been 128 recorded wildfires within ten miles of the management area and 32 wildfires within five miles. There have only been three wildfires within one mile of the management area; one occurring in 1936 and two in 1951 (See Map 2-2, Regional Fire History).

Despite the absence of recorded wildfire occurrences, the management area experiences high to extreme fire danger annually. The area reaches critical thresholds of National Fire Danger Rating System (NFDRS) indices from mid-July through early October, based on weather observations from the Schoolhouse and Big Hill Remote Automated Weather Stations. Large, damaging wildfires on adjacent lands have historically occurred when NFDRS levels were above the red dotted line on the following graphs:



\*Energy Release Component (ERC) is related to the available energy per unit area based on fuel moisture content and drought conditions. As live fuels cure and dead fuels dry, the ERC values get higher thus reflecting potential “heat release” in the flaming zone.

\* Burning Index (BI) is derived from ERC, adding wind, slope, and weather stability into the equation to determine potential effort needed to contain a wildfire.



**Figure 2-6, Lacks Creek Fire Danger**

A history of recent fire suppression, decreased fire use, and logging activity has interrupted the fire regimes that developed in the different vegetation types for centuries. Douglas-fir and other tree and brush species have moved into meadows in fire's absence. Without active management, prairies will shrink in size as encroachment by woody species continues. This will cause a reduction in species diversity. Second-growth forests will also become increasingly dense with dead and down fuels as they undergo stand exclusionary phases, increasing the potential for high intensity wildfire.

## **2.17 Law Enforcement/Public Health and Safety**

Emergency services providers including local volunteer fire departments, the Humboldt County Sheriffs Department, Coast Guard, CalFire and the BLM respond to hazardous conditions and distress calls on public lands in the region. Lacks Creek itself has had minimal search and rescue incidents due to its low level of public use. Lacks Creek also possesses a relatively low level of risks and dangers for visitors when compared to many remote public land recreation destinations (e. g. cliffs, whitewater, ocean waves etc.). Search and rescue is a local county responsibility on public lands throughout the United States, and the closest medical aid resources are dispatched to render medical assistance or to assist with search efforts. BLM law enforcement rangers assist the county with these efforts

Due to its remote location, public cell phone reception is intermittent at Lacks Creek, except on the ridgetops. Each agency in the region maintains its own radio communication system. The BLM has a cooperative agreement with the Forest Service for dispatch and monitoring of BLM frequencies. BLM law enforcement rangers also have access to California Highway Patrol and County Sheriff radio communications. BLM maintains a radio repeater site on Horse Mountain to provide coverage for the Lacks Creek area.

A significant component of the BLM's safety program focuses on prevention of accidents by providing information and education materials to make backcountry visitors aware of possible hazards and proper preparation for area conditions. Area brochures and the BLM website inform visitors of potential hazards unique to various management areas and how to prepare for and/or avoid them.

## **2.18 Solid Waste and Hazardous Materials**

No known landfills or other hazardous waste sites are known to occur on public lands in the management area. A Phase 1 Environmental Site Assessment was conducted on the acquired lands and no hazardous materials were located. Currently, the volume of hazardous waste that is generated from management in the management area does not exceed the small quantity generator threshold. The small volume of hazardous waste that is generated is either recycled or disposed through the Humboldt County Small Quantity Generator Program. No materials are stored on-site, as they are transported from the BLM Field Office in Arcata. Material Safety Data Sheets are obtained and made available where potentially hazardous chemicals are used or stored.

Trash receptacles are not provided on-site and visitors are asked to pack out their own materials. The BLM does not burn waste or dispose of waste on-site. Occasionally, illegal dumping occurs on public land within the area. The waste is disposed properly by the BLM and, when feasible, the responsible party is identified and legal remedies are sought.

## **2.19 Air Quality**

Air quality for Humboldt County including the management area is managed and monitored by the North Coast Unified Air Quality Management District (NCUAQMD). The BLM does not have any ongoing operations in Lacks Creek that fall under air quality permits issued by the state or federal government. The two primary unregulated sources of air pollution that can originate on public lands in the management area are smoke from fires and dust generated from road use, maintenance, and rehabilitation.

In the event of a uncontrolled wildfire in the Lacks Creek Management Area the NCUAQMD Regulation 2 [revised 1987 and adopted by the Basin Control Council of the California North Coast Air Basin (1988)], contains provisions for the setting of backfires necessary to save life or valuable property (California Public Resources Code, Section 4426). The regulation also allows prescribed burning activities for the abatement of fire hazards (California Health and Safety Code, Section 13055) and for forest management, range improvement, disease or pest prevention, or the improvement of land for wildlife and game habitat (California Health and Safety Code Section, 39011<a>).

The BLM will conduct prescribed burning activities only on Permissive Burn Days as determined by the NCUAQMD (California Health and Safety Code, Section 41855), or with a variance granted by the NCUAQMD. Authorization are obtained daily prior to ignitions. The BLM complies with the guidelines set forth in the North Coast Unified Air Quality Management District Particulate Matter (PM10) Attainment Plan (1995) in order to achieve the California Ambient Air Quality Standards for PM10. Smoke management concerns shall be addressed in all prescribed fire plans. For all prescribed burns over ten acres in size a Smoke Management Plan shall be submitted to the NCUAQMD for approval prior to ignitions. Smoke emissions from prescribed burning activities may have minimal intermittent effects on the visual resources of the Lacks Creek Management Area, but are not expected to impact the Air Quality Management District beyond negligible levels.

Dusty roads are not considered to have a significant affect on air quality due to the absence of ultramafic or serpentinite bearing rock formations within the Lacks Creek Management Area. Currently, road maintenance activities are performed during moderately wet periods during the fall and spring to ensure adequate soil moisture content. This seasonal operation reduces dust generation during grading and enhances road surface compaction, which results in road surfaces that are less prone to dust generation from routine traffic and less likely to erode under precipitation. Current operations are either not subject to or are currently fully compliant with all air pollution control requirements. There are no planned operational changes that will result in generation of regulated air pollutants; therefore, no specific alternatives have been identified to address air quality.

